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Original Research

Dental Occlusion among School Going Children of Maharashtra

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Abstract:

Background: A dental survey was conducted among the school going children of age group 6-13 yrs, focused to find out incidence of malocclusion so as to predict the probable time at which preventive measures can be taken.

Materials and Methods: A survey was carried on 985 unrelated healthy subject, including of 575 boys and 410 girls and the population was divided into three economic group of upper, middle and lower class.

Results:

1) In the study 57% of sample is found with normal occlusion.
2) The proportion of malocclusion was higher in males.
3) Lower income group sample showed highest proportion of malocclusion.

Conclusion: In this study on school going children, it was found out that 57% of population showed normal occlusion and that malocclusion was higher in males and in lower income group population.

Key Words: Crowding, malocclusion, spacing, ugly duckling stage

Introduction

A dental survey was conducted among the schoolgoing children's of Amravati (Maharashtra) of age group 6-13 years. It focused to find out the incidence of various morphological variations such as classes (angle classification, Deweys-Anderson modification), diastema, crowding, spacing, supernumarary teeth, congenital missing teeth, etc. in regards to sex (Table 1), age (Table 2), economic status (Table 3).

At present, no work of this kind has been carried out on this population as shown by the published literature.

The information gained will be valuable in:

- In determining the general occlusal pattern of teeth in this area and variation in males and females.
- Determining the age when malocclusion starts developing so as to predict the probable time at which the preventive measures or orthodontic treatment should be started.

Dental occlusion is a relationship between the masticatory surfaces of the maxillary and mandibular teeth. In some cases, the occlusion is defective and hence causes malocclusion.[1-3]

Definition of occlusion: Angle defined occlusion as the normal relation of the occlusal inclined planes of the teeth when the jaws are closed.

Wheeler defined occlusion as the contact relationship of teeth in function or parafunction.[4,5]

Definition of malocclusion: The condition where there is a departure from the normal relation of the teeth to other teeth in same and opposite arch is called malocclusion.[6,7]

Materials and Methods

A survey of occlusion was carried out on 985 unrelated healthy subjects, including 575 boys and 410 girls in age range of 6-13 years belonging to various communities were examined in their schools in broad day light and with mouth mirror and probe.

For the sake of convenience, the entire population is divided into three economic groups namely upper (>10,000/year), middle (5000-10,000/year) and lower (<5000/year) based on their yearly income of the each family from various sources.

A detailed proforma had been filled in and dental inspections by dental surgeon were carried out. The type of occlusion was noted on Performa. Grouping of cases by age has been done according "to the completed age", i.e., age at last birth-day from their school record.

Results and Discussion

In the present study, when the occlusion is examined nearly 57% of the sample is found with normal occlusion, while 10%

Table 1: Occlusal pattern by sex.

Sex	Total number of subjects examined	Occlusion not sure	Normal occlusion	Class I					Class II		Class III	Spacing		Crowding	
				Type I	Type II	Type III	Type IV	Type V	Division 1	Division 2		Upper	Lower	Upper	Lower
Males	575	48 (8)	328 (57)	92 (16)	50 (9)	24 (4)	6 (1)	0 (-)	20 (3)	7 (l. 2)	L (0.2)	74 (15.5)	23 (5)	62 (13)	110 (23)
Females	410	48 (12)	237 (58)	61 (15)	39 (9.5)	6 (l-4)	2 (0.4)	0 (-)	12 (3)	3 (0.7)	2 (0.4)	38 (9)	13 (3)	49 (12)	51 (12.4)
Total	985	95 (9)	565 (57)	153 (15.5)	89 (9)	30 (3)	8 (0-8)	0 (-)	32 (3.2)	10 (1)	3 (0.3)	112 (11.3)	36 (4)	111 (11.2)	161 (16.3)

The figures in the bracket indicates the percent values (% values)

Table 2: Occlusal pattern by age group.

Age group (years)	Total number of subjects examined	Occlusion not sure	Normal occlusion	Class I					Class II		Class III	Spacing		Crowding	
				Type I	Type II	Type III	Type IV	Type V	Division 1	Division 2		Upper	Lower	Upper	Lower
6	112	58 (52)	46 (41)	5 (4)	2 (2)	0	1 (0.8)	0	0	OH	0	3 (2.6)	3 (2.6)	2 (1.7)	2 (1.7)
7	149	18 (12)	111 (74)	18 (12)	OH	1 (0-6)	0	0	0	0	1 (0.6)	11 (7.3)	5 (3)	13 (9)	22 (15)
8	137	15 (11)	75 (55)	25 (18)	7 (5)	9 (6.5)	1 (0.7)	0	3 (2)	1 (0.7)	1 (0.7)	23 (17)	4 (3)	19 (14)	36 (26)
9s	131	1 (0.7)	65 (50)	29 (122)	19 (14.5)	6 (4.5)	1 (0.7)	0	6 (4.5)	2 (l. 5)	2 (l. 5)	19 (14.5)	4 (3)	17 (13)	33 (25)
10	158	0	88 (56)	29 (18)	14 (9)	5 (3)	2 (1)	0	13 (8)	7 (4)	OH	15 (9)	5 (3)	23 (14.5)	24 (15)
11	154	3 (2)	85 (55)	27 (17.5)	23 (15)	4 (2.5)	2 (2)	0	5 (3)	3 (2)	2 (1.2)	21 (14)	4 (2.5)	14 (9)	29 (19)
12	114	0	50 (44)	22 (19)	29 (25)	1 (0.8)	0	0	10 (9)	2 (2)	0	8 (7)	1 (0.8)	11 (10)	11 (10)
I3	31	0	16 (52)	6 (19)	7 (22.5)	1 (3)	0	0	1 (3)	0	OH	4 (13)	3 (10)	5 (16)	4 (13)

The figures in the bracket indicates the percent values (% values)

Table 3: Occlusal pattern by economic status.

Group	Total number of subjects examined	Occlusion not sure	Normal occlusion	Class I					Class II		Class III	Spacing		Crowding	
				Type I	Type II	Type III	Type IV	Type V	Division 1	Division 2		Upper	Lower	Upper	Lower
Upper	380	39 (10)	209 (55)	54 (14)	30 (8)	10 (2.6)	4 (1)	0	24 (6-3)	9 (2-3)	1 (0-2)	51 (13.4)	20 (5)	59 (15.5)	77 (20)
Middle	318	22 (7)	212 (67)	36 (11)	22 (7)	8 (2.5)	3 (0.9)	0	7 (22)	6 (2)	2 (0.6)	43 (13.5)	9 (3)	25 (8)	47 (15)
Lower	289	34 (12)	142 (49.4)	60 (21)	37 (13)	11 (4)	1 (0.3)	0	1 (0.3)	0	1 (0.3)	18 (6.2)	7 (2.4)	27 (9.4)	40 (14)
Total	985	95 (9.6)	563 (57)	150 (15)	89 (9)	29 (2.9)	8 (0.8)	0	32 (3.2)	15 (l. 5)	4 (0.4)	112 (11.3)	36 (3.6)	111 (11)	164 (17)

The figures in the bracket indicates the percent values (% values)

of the sample, the occlusion was not sure due to incomplete eruption of the teeth.

Although in the study of Dr. Reddy carried out in the city of Gulberga it was seen that over 60% of the population was with normal occlusion and nearly 5% of the population were not observed for occlusion due to incomplete eruption of teeth.[8,9]

In our study, the rest 33% of the sample was found with malocclusion, whereas in the previous study the malocclusion was 35%. This difference is not much significant, and it is in accordance with the previous study.

In our study, the subjects of the lower income group show the highest proportion of malocclusion cases (38%), upper income group shows (34%) of malocclusion and lowest being observed in middle income group, i.e., (25%).

Whereas, in the study of Gulbarga the subjects of the upper income group were found to show the highest proportion of malocclusion, followed by middle and lower income group.

The observation of our study contrast the observation of previous study in which the malocclusion proportion was highest in the upper economic group, while the lower economic status shows the lowest proportions of malocclusion whereas in our study, the malocclusion in the lower economic status was lowest.

Majority of the subjects with maloclusion were found to belong to Class I Type I malocclusion (15.5%), followed by Class I Type II (9%) Type III (3%) end Type IV (0.8%).

While in previous study, majority of malocclusion was found with overbite type, next to which was edge to edge type, followed by open bite, Class II type, cross bite and Class III.

The observation of our study that states the highest proportion of malocclusion was showing anterior crowding is in contrast with the observation of previous study that shows that the highest proportion of malocclusion belongs to the overbite type of malocclusion.

In our study, about 57% of the males and 58% females show normal occlusion. The proportion of malocclusion was slightly higher in males (35%) then females (30%).

While in the previous study the difference between males and females was insignificant with 63.6% in males and 63.3 % in females, respectively were with normal occlusion. About 32.2% of males and 31.6% in females were which malocclusion that is insignificant.

In our study, males show 5% more cases of malocclusion than females that are in contrast with the previous study.

In our study, the examination of the occlusal pattern by age groups shows that the occlusal pattern was not sure in 52% of 6 years sample and 10% of 7 and 8 years sample due to incomplete eruption of the teeth. The malocclusion was highest in age group 12 years (56%), followed by 9 years (49%), 13 years (48%), 10 years (44%), 11 years (42%), 8 years with (34.3%), 7 years (13.4%) and least proportion of malocclusion was in subjects of 6 years with 7% only.

In the previous study, the occlusal pattern by age group observation shows that the occlusion was not reported in about 63% of total subjects aged 5 years-11 months. As in our study, no examination of the subjects aged below 6 years has been carried out we cannot compare our observation with this observation of previous study. The highest proportion of malocclusion slightly over 50% found in subjects aged 12 years, followed by those of 16, 11, 13, and so on.

In our study, the highest proportion of malocclusion was in the subject aged 12 years which are in accordance with the previous study of Gulbarga.

In our study the least proportion of malocclusion was in subjects aged 6-7 years whereas in the previous study it was least in 1-2 years age group as we didn't examine the subjects of 1-2 years age group we can't compare our observations with the observation of the previous study.

In our study, overall subjects shows that lower crowding was with the highest proportion (16%). It is followed by upper spacing (10.6%), upper crowding (10%) and least was of lower spacing (3%).

When the spacing and crowding are examined by age group, the highest proportion of spacing and crowding is found in 9 years subject that is mixed dentition stage (Ugly-Ducklinng Stage). The lowest proportion of spacing and crowding was found in 13 years subjects when nearly all the permanent teeth are erupted into the oral cavity.

When the spacing and crowding are seen in various economic status it is seen that highest proportion of spacing and crowding was in upper economic status (54%) followed by middle economic status (31%) and least in lower economic status (24%).

When examined by sex group it is seen that males show more spacing (16%) than females (12%), while crowding in both males and females is same, about 25% each.

In the study of Gulbarga, they didn't mention about spacing and crowding, so we cannot compare their observations with the observations of our study.

Conclusion

1. In a sample of 6-13 years age 57% had normal occlusion, 33% had malocclusion and in 10% occlusion was not sure due to unerupted permanents
2. Lower income group showed highest percentage of malocclusion i.e. 38% followed by upper income group of 34% and 25% for middle income group.
3. Majority had class 1 type 1 malocclusion i.e. 15.5% followed by class 1 type 2 of 9%
4. Malocclusion was more in males than females of 35% and 30% respectively
5. Highest percentage malocclusion was in 12 years age group (56%) followed by 9 years (495).

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